

A-4

U.S. Patent Nos. 6,337,746 & 6,618,157

ATTACHMENT 4

Overview of Brother MFC-9440CN Printer

Plaintiff accuses the making, using, selling, offering for sale and importation of Brother color printer models MFC-9420, MFC-9440, MFC-9450, MFC-9460CDN, MFC-9560CDW, MFC-9465, MFC-9840CDW, MFC-9970CDW of constituting direct infringement of U.S. Patent Nos. 6,337,746 and 6,618,157 (hereinafter “the Patents-in-Suit”). As an exemplary and typical model, the MFC-9440CN printer is charted below. The term “Accused System and Method” means the foregoing printer models sold by Brother and all other models that are substantially similar.

Plaintiff further accuses Brother of indirectly infringing the Patents-in-Suit through providing, authorizing and instructing regarding the Accused System and Method to others, including Brother’s customers. Installing the Accused System and Method and the operation thereof directly infringe the asserted claims. Brother intends to cause infringement by its customers and users. Brother instructs users to install the software and associated hardware of the Accused System and Method. As such, Brother instructs users to configure and operate the Accused System and Method in an infringing manner. Brother also provides installation, maintenance and support services for the Accused System and Method, including providing instruction, tools, manuals, guides, online materials, support and consulting services.

The asserted claims include elements that are implemented, at least in part, by software in the Accused System and Method. The precise processes and algorithms used in them are held secret, at least in part, and are not publicly available in their entirety. An analysis of Brother’s documentation is necessary to fully and accurately describe all infringing features and functionality of the Accused System and Method and, accordingly, plaintiff reserves the right to supplement these contentions once such information is made available to plaintiff. Furthermore, plaintiff reserves the right to revise these contentions in view of the Court’s final claim construction in this action.

U.S. Patent Nos. 6,337,746 & 6,618,157



U.S. Patent No. 6,337,746

1. Apparatus for printing a graphic image on a substrate, comprising:

The Accused System and Method is designed to print on a substrate. For example, the Accused System and Method is used for cut-sheet materials.

Print back to top	
Print Technology	Color Laser Technology
Consumable Type	4 Toner Cartridges and Drum
Max. Black Print Speed (ppm)	21ppm Black
Max. Color Print Speed (ppm)	21ppm Color
Print Resolution (maximum dpi)	Up to 2400 x 600 dpi
Standard Input Paper Capacity (sheets)*	250-Sheet Input Capacity
Optional Paper Capacity (sheets)	LT-100CL (500 sheets)*
Multi-purpose Tray	50-Sheet Multi-Purpose Tray Capacity
Standard Interface(s)	10/100 Base-TX (Ethernet) and Hi-Speed USB 2.0
USB Direct Interface/PictBridge†	Yes/Yes
Standard Memory (MB)	64MB Memory
Optional Memory (MB)	Yes (up to 576MB)*
Printer Driver Compatibility†	Windows® & Mac OS®
Emulation(s)	PCL-6, BR-Script 3†
Maximum Monthly Duty Cycle‡	35,000 printed pages
Recommended Monthly Print Volume‡	500 to 3,000 pages

<http://www.brother-usa.com/mfc/modeldetail.aspx?PRODUCTID=MFC9440CN&tab=spec>
(3/31/11)

U.S. Patent Nos. 6,337,746 & 6,618,157

a computer containing at least one motherboard which carries a data bus and a random access memory, said computer being controlled by an operating system;

The Accused System and Method is driven by a computer containing a motherboard with a data bus and memory. The computer is controlled by an operating system.

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MFC-9440CN Supported Functions			
Computer Platform & Operating System	Supported Functions	Interface	
Windows® 64	Windows® 2000 Professional	Printing, PC Fax®, Scanning¹	USB, Ethernet
	Windows® XP Home		
	Windows® XP Professional		
	Windows Vista®		
	Windows® 7	Printing	Ethernet
	Windows Server® 2003		
Mac®	Windows® XP Professional x64 Edition	Printing, PC Fax®, Scanning¹	USB, Ethernet
	Windows Server® 2003 x64 Edition	Printing	Ethernet
	Mac OS® X 10.2.4 or greater	Printing, PC Fax Send®, Scanning	USB², Ethernet

MFC-9440CN Minimum System Requirements			
Computer Platform & Operating System	Minimum Processor	Recommended RAM	Required Hard Disk Space
Windows® 64	Windows® 2000 Professional	256 MB	460 MB
	Windows® XP Home		
	Windows® XP Professional		
	Windows Vista®	1 GB	1.18 GB
	Windows® 7		
	Windows Server® 2003	512 MB	50 MB
Mac®	Windows® XP Professional x64 Edition		460 MB
	Windows Server® 2003 x64 Edition		50 MB
	Mac OS® X 10.2.4 or greater	160 MB	480 MB

<http://www.brother-usa.com/mfc/ModelDisclaimer.aspx?Model=MFC9440CN#SysReqs> (3/31/11)

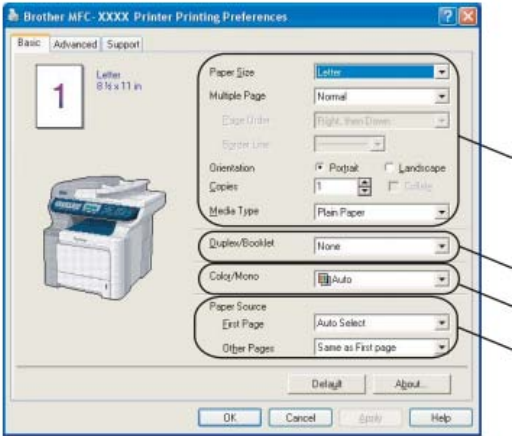
Full Driver & Software Package

We recommend this download to get the most functionality out of your Brother machine. This is a comprehensive file containing available drivers and software for the Brother machine.

Language	Version	Size	Release Date	File
English	E2	73.24MB	01/06/2011	Download & Information

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http://welcome.solutions.brother.com/bsc/public/us/us/en/dlf/download_index.html?reg=us&c=us&lang=en&prod=mfc9440cn_all&dlid=&flang=English&os=7&type2=-1 (3/31/11)



http://welcome.solutions.brother.com/BSC/public/files/dlf/doc002254/cv_mfc9440_usa_soft_b.pdf p.17 (3/31/11)

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MFC-9440CN Supported Functions			
Computer Platform & Operating System		Supported Functions	Interface
Windows® 4	Windows® 2000 Professional	Printing, PC Fax ² , Scanning ¹	USB, Ethernet
	Windows® XP Home		
	Windows® XP Professional		
	Windows Vista®		
	Windows® 7	Printing	Ethernet
	Windows Server® 2003		
Mac®	Windows® XP Professional x64 Edition	Printing, PC Fax ² , Scanning ¹	USB, Ethernet
	Windows Server® 2003 x64 Edition	Printing	Ethernet
	Mac OS® X 10.2.4 or greater	Printing, PC Fax Send ³ , Scanning	USB ² , Ethernet

MFC-9440CN Minimum System Requirements			
Computer Platform & Operating System		Minimum Processor	Required Hard Disk Space
Windows® 4	Windows® 2000 Professional	Intel® Pentium® or AMD equivalent	256 MB
	Windows® XP Home		
	Windows® XP Professional		
	Windows Vista®	Intel® Pentium® 4 64-bit CPU or AMD equivalent	1 GB
	Windows® 7		1 GB (32-bit) 2 GB (64-bit)
	Windows Server® 2003	Intel® Pentium® III or AMD equivalent	50 MB
	Windows® XP Professional x64 Edition	AMD Opteron™, AMD Athlon™ 64, Intel® Xeon™ with Intel® EM64T, Intel® Pentium® 4 with Intel® EM64T	460 MB
	Windows Server® 2003 x64 Edition	Intel® Xeon™ with Intel® EM64T	50 MB
Mac®	Mac OS® X 10.2.4 or greater	PowerPC G4/G5, Intel Core Solo/Duo, PowerPC G3 350MHz	480 MB

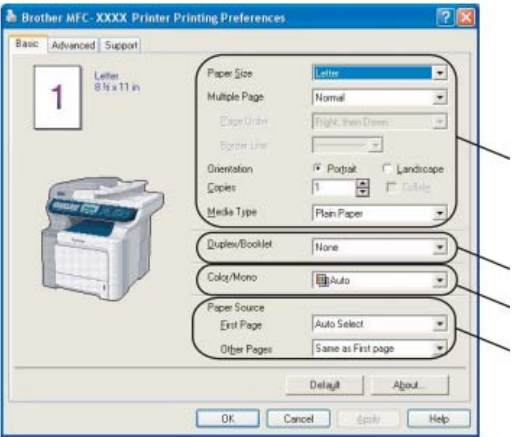
<http://www.brother-usa.com/mfc/ModelDisclaimer.aspx?Model=MFC9440CN#SysReqs> (3/31/11)

Full Driver & Software Package

We recommend this download to get the most functionality out of your Brother machine. This is a comprehensive file containing available drivers and software for the Brother machine.

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English	E2	73.24MB	01/06/2011	Download & Information

http://welcome.solutions.brother.com/bsc/public/us/us/en/dlf/download_index.html?reg=us&c=us&lang=en&prod=mfc9440cn_all&dldid=&flang=English&os=7&type2=-1 (3/31/11)



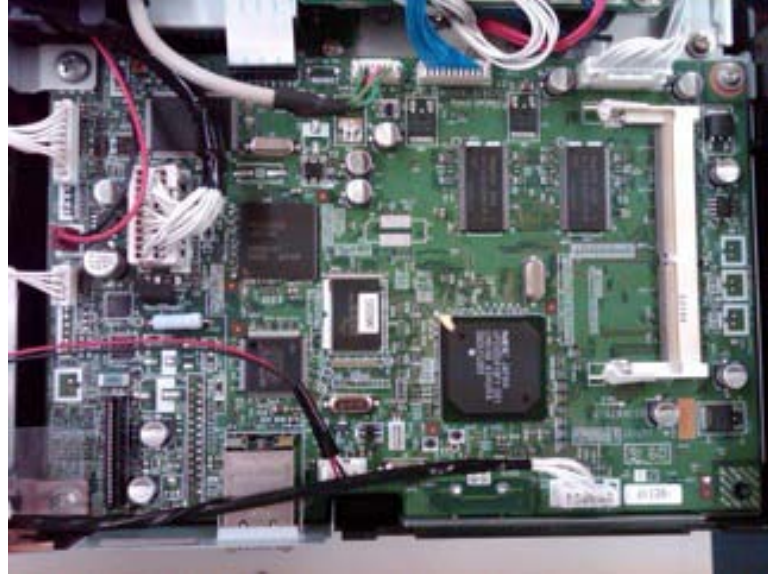
http://welcome.solutions.brother.com/BSC/public/files/dlf/doc002254/cv_mfc9440_usa_soft_b.pdf p.17 (3/31/11)

at least one interface card connected to said data bus and having a serial port

The Accused System and Method incorporate an interface card connected to a data bus. The interface card includes serial ports (including Ethernet and/or USB).

U.S. Patent Nos. 6,337,746 & 6,618,157

connected to the data bus, a printing device interface, and means for transferring stored image data from said random access memory to said printing device interface;

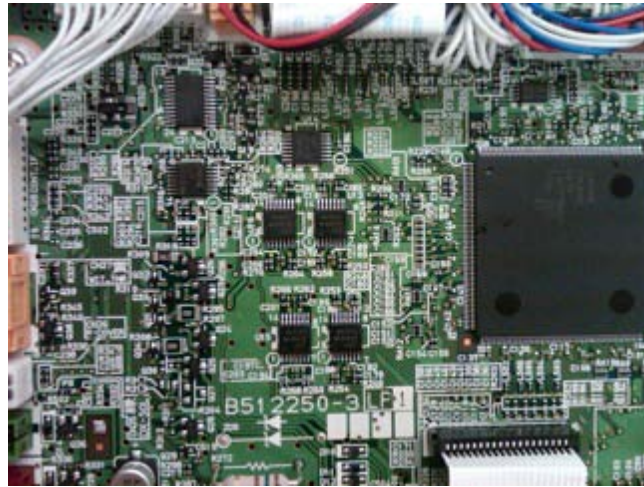


USB and Ethernet Serial Ports

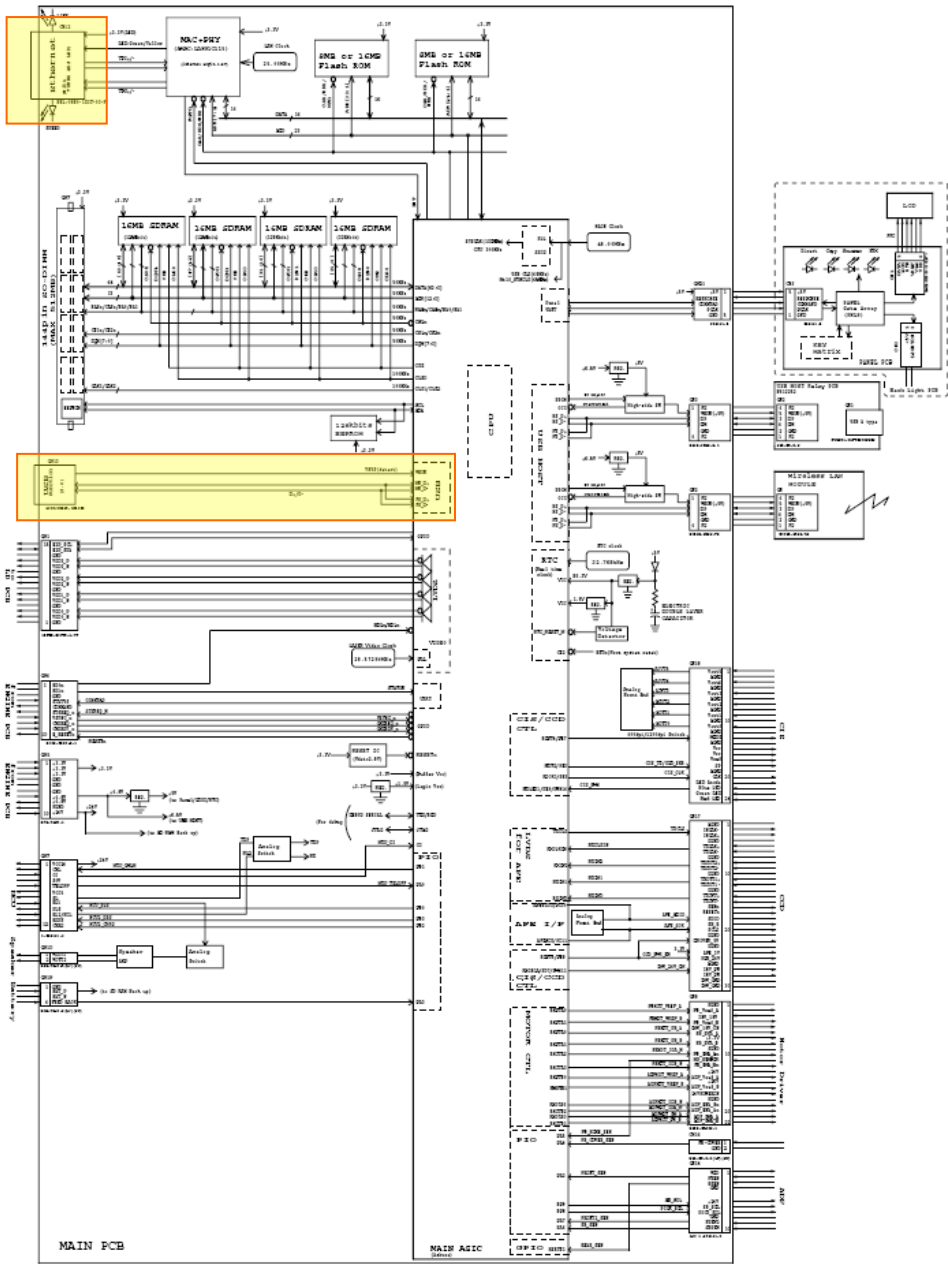


ASIC CPU

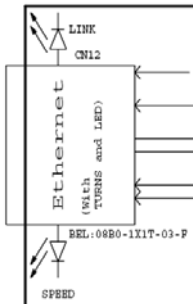
U.S. Patent Nos. 6,337,746 & 6,618,157



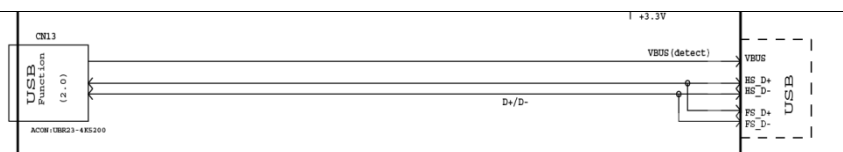
U.S. Patent Nos. 6,337,746 & 6,618,157



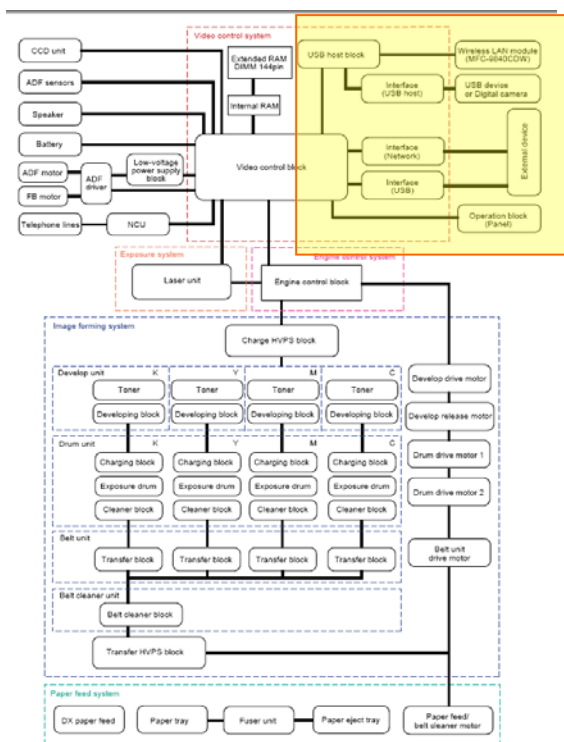
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U.S. Patent Nos. 6,337,746 & 6,618,157



Brother MFC-9120CW Service Manual, p. 6-11



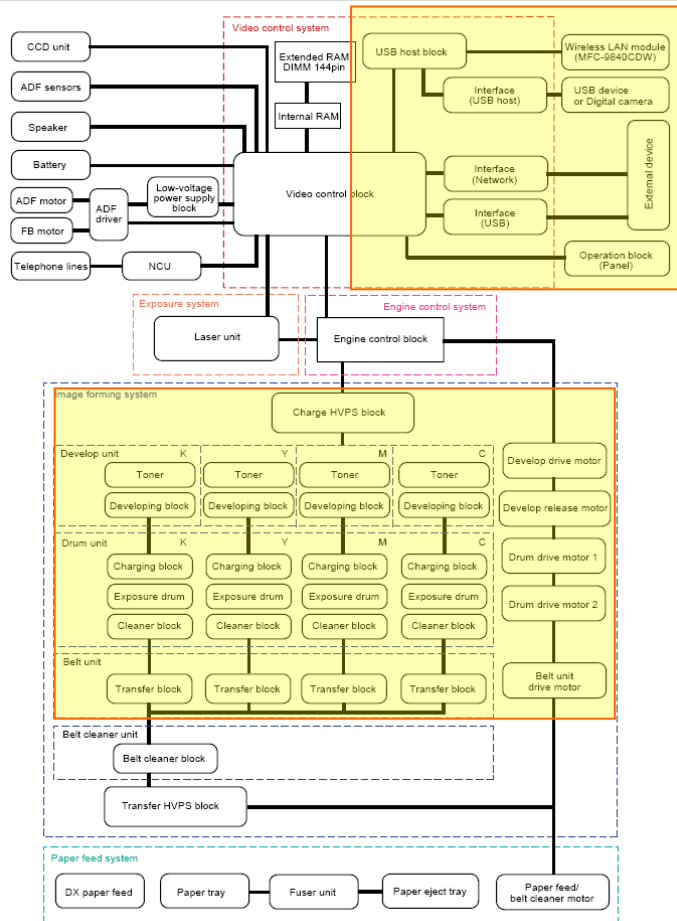
Brother MFC-9840CDW Service Manual, p. Ref 2-1

MFC-9840CDW is a machine listed in this category. It functions similarly to the MFC-9440CN.

a digital printing device connected to said interface for printing the graphic image on the substrate on the basis of stored image data transferred from said random access memory, the digital printing device communicating with the data bus via the serial port;

The Accused System and Method include digital printing devices, which receive formatted digital data. This data is provided to the laser heads on the printer, which in turn activates to fuse color toners on print substrates to produce color images. Signals are communicated via the serial port.

U.S. Patent Nos. 6,337,746 & 6,618,157

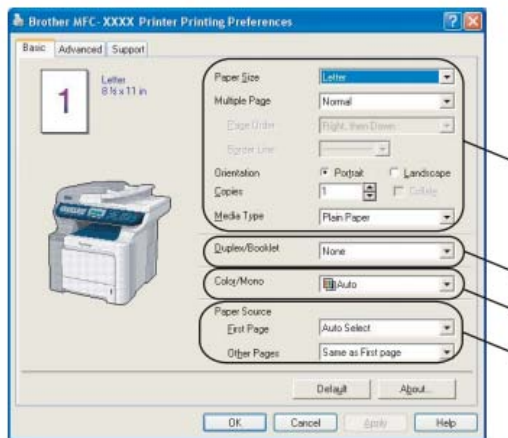


Brother MFC-9840CDW Service Manual, p. Ref 2-1

MFC-9840CDW is a machine listed in this category. It functions similarly to the MFC-9440CN.



U.S. Patent Nos. 6,337,746 & 6,618,157



http://welcome.solutions.brother.com/BSC/public/files/dlf/doc002254/cv_mfc9440_usa_soft_b.pdf p.17 (3/31/11)

said printing device printing the graphic image in response to image data in a first format;

The formatted data at the printer engine is provided in a different format than the data stored in the RAM, namely a first format specific to the printing device's formatting requirements. The Accused System and Method is designed to print on a substrate. For example, the Accused System and Method is used for cut-sheet materials.

Print

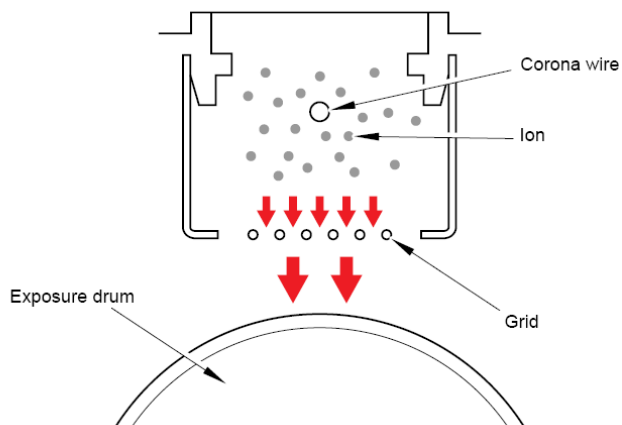
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Print Technology	Color Laser Technology
Consumable Type	4 Toner Cartridges and Drum
Max. Black Print Speed (ppm)	21ppm Black
Max. Color Print Speed (ppm)	21ppm Color
Print Resolution (maximum dpi)	Up to 2400 x 600 dpi
Standard Input Paper Capacity (sheets)*	250-Sheet Input Capacity
Optional Paper Capacity (sheets)	LT-100CL (500 sheets)*
Multi-purpose Tray	50-Sheet Multi-Purpose Tray Capacity
Standard Interface(s)	10/100 Base-TX (Ethernet) and Hi-Speed USB 2.0
USB Direct Interface/PictBridge†	Yes/Yes
Standard Memory (MB)	64MB Memory
Optional Memory (MB)	Yes (up to 576MB)*
Printer Driver Compatibility†	Windows® & Mac OS®
Emulation(s)	PCL-6, BR-Script 3‡
Maximum Monthly Duty Cycle‡	35,000 printed pages
Recommended Monthly Print Volume‡	500 to 3,000 pages

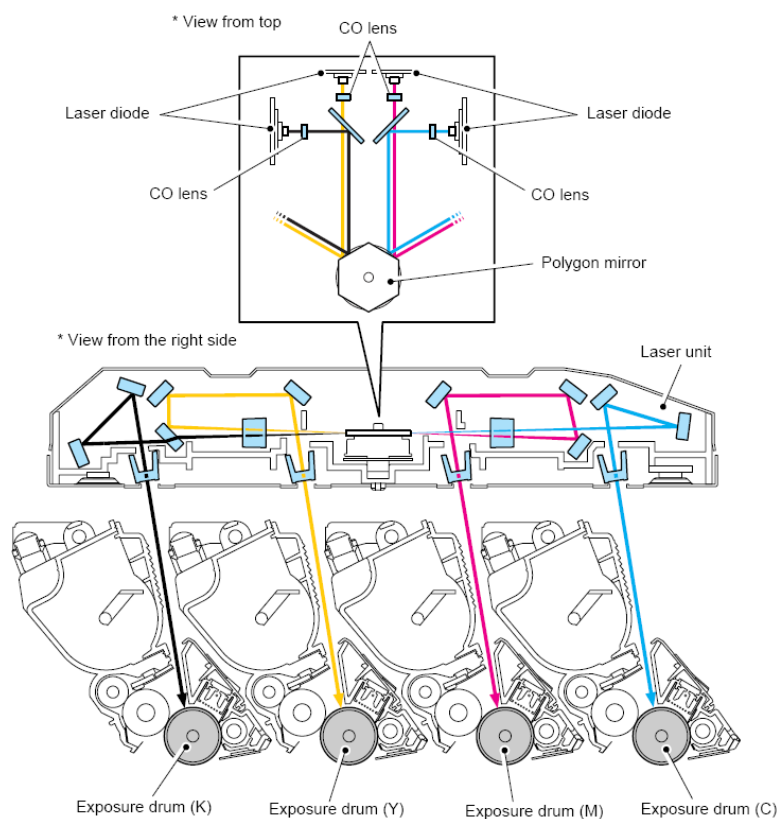
<http://www.brother-usa.com/mfc/modeldetail.aspx?PRODUCTID=MFC9440CN&tab=spec> (3/31/11)

U.S. Patent Nos. 6,337,746 & 6,618,157**Charging**

The flow of the ion charge is controlled by the constant voltage of the grid 870 V to ensure it is distributed evenly on the drum surface. In order to coat toner on the exposure drum, the drum needs to be evenly electrified. Ions are produced by supplying high-voltage power to the corona wire.

**Exposure**

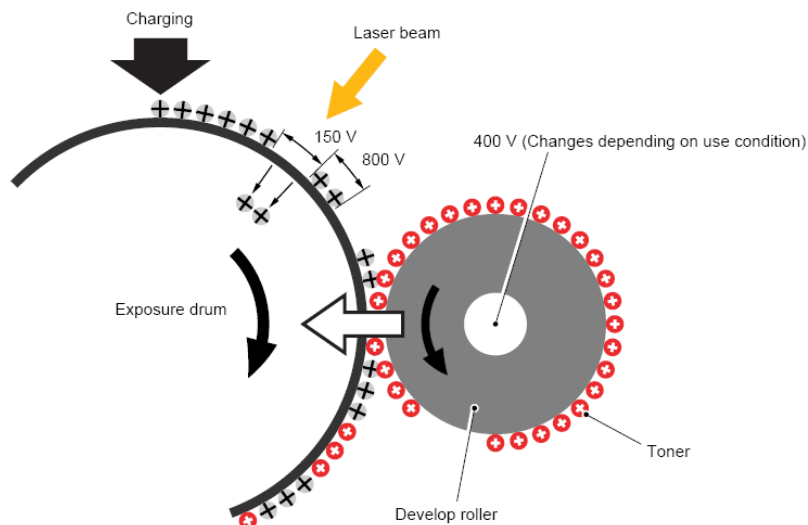
Four laser beams radiated from a laser diode inside the laser unit are concentrated into a constant width by a slit in the CO lens cell and then reflected by a polygon mirror rotating at high speed. The evenly charged exposure drum is irradiated with reflected light and exposed. Surface potential is lowered by such exposure and an Electrostatic latent image is formed.



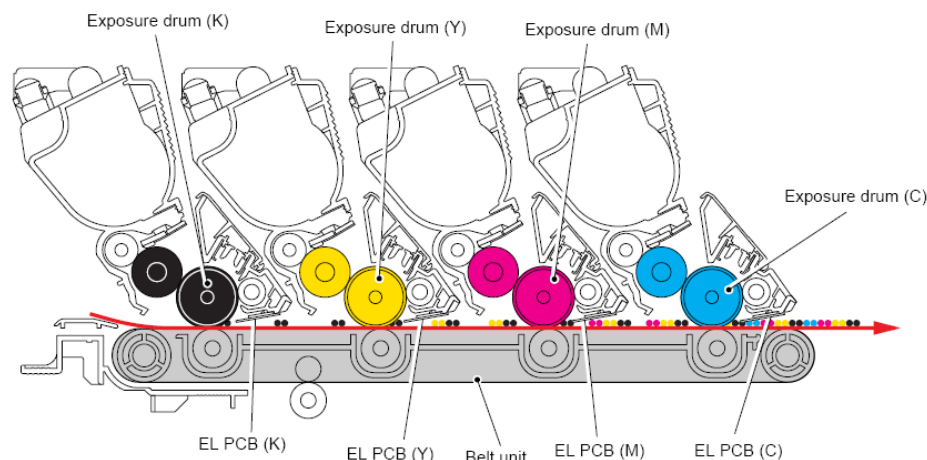
U.S. Patent Nos. 6,337,746 & 6,618,157**Development**

Toner is attracted to the latent-image area on the exposure drum where surface potential is lowered due to exposure.

By controlling the developing bias voltage supplied to the develop roller, the amount of toner taken to the drum is adjusted to keep printing density constant.

**4. Transfer**

By applying a minus charge to the belt unit, the toner adhered to the exposure drum is transferred to paper.

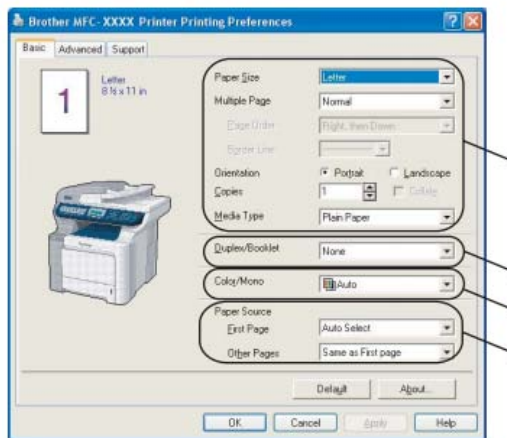


Brother MFC-9840CDW Service Manual, p. Ref 2-27 thru Ref 2-30
MFC-9840CDW is a machine listed in this category. It functions the same as the MFC-9440CN.

said means for storing image data storing image data in a second format different from the first format; and

RAM on the computer stores image data. The format of the stored data is different than that which is sent to the printer.

U.S. Patent Nos. 6,337,746 & 6,618,157



http://welcome.solutions.brother.com/BSC/public/files/dlf/doc002254/cv_mfc9440_usa_soft_b.pdf p.17 (3/31/11)

Full Driver & Software Package

We recommend this download to get the most functionality out of your Brother machine. This is a comprehensive file containing available drivers and software for the Brother machine.

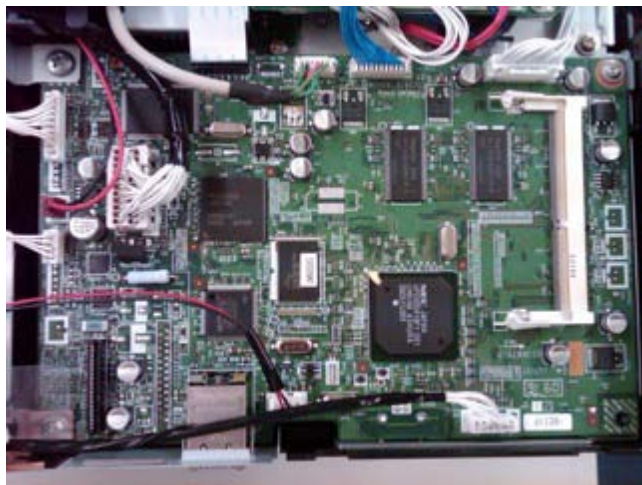
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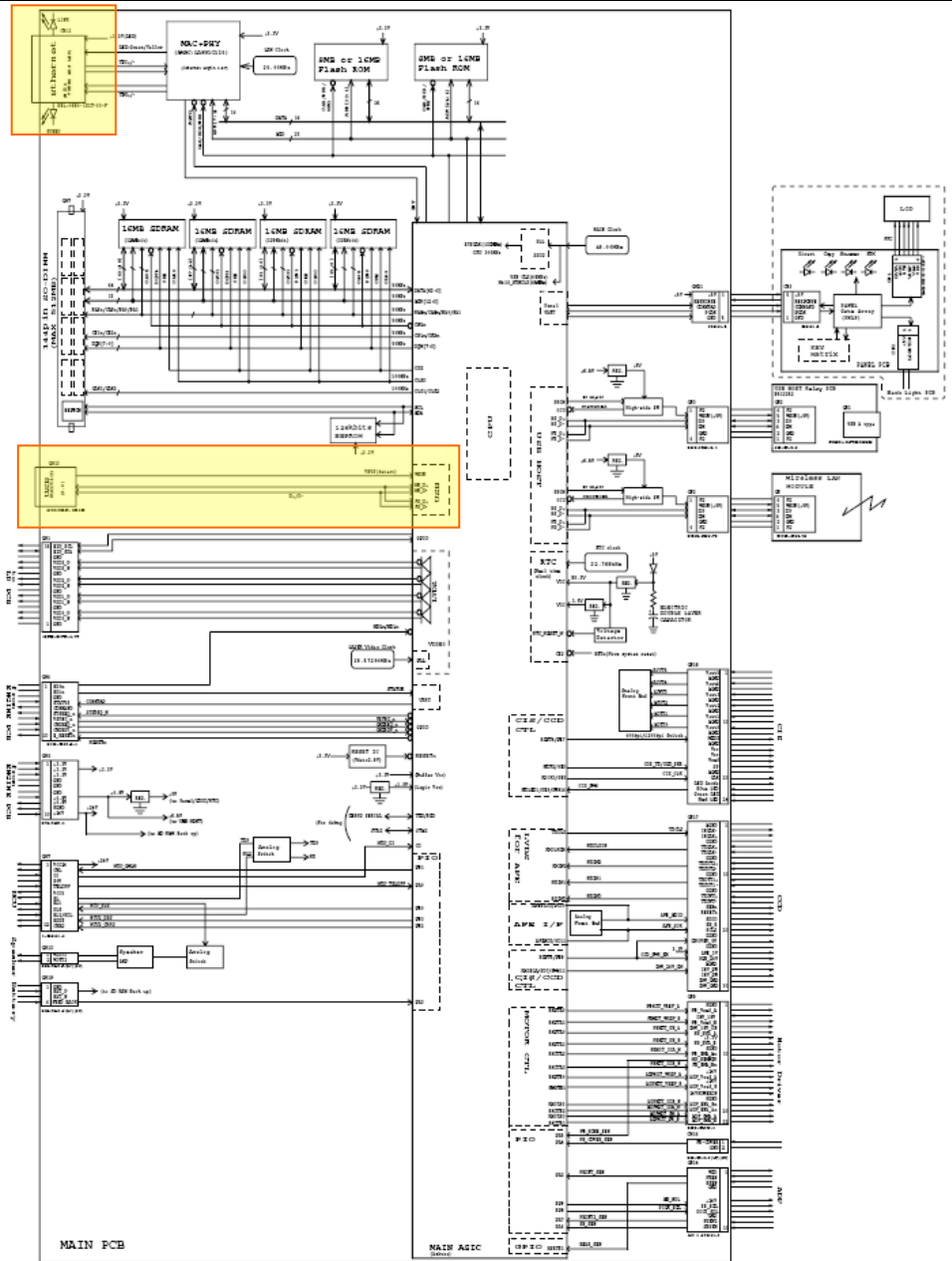
http://welcome.solutions.brother.com/bsc/public/us/us/en/dlf/download_index.html?reg=us&c=us&lang=en&prod=mfc9440cn_all&dlid=&flang=English&os=7&type2=-1 (3/31/11)

said means for transferring stored image data comprising conversion means for converting image data in the second format into image data in the first format by multiplexing different portions of the image data in the second format and for delivering image data converted into the first format to said printing device.

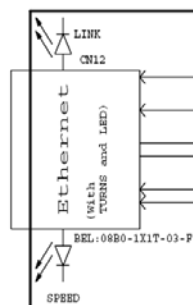
Image data stored in RAM is converted and formatted (including multiplexed) for delivery to the print engine over data interfaces.



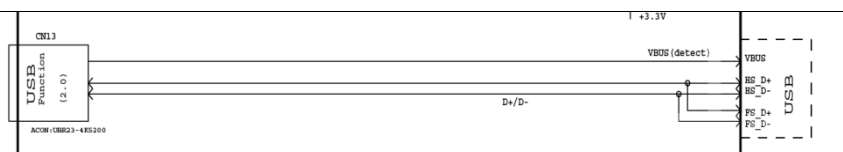
U.S. Patent Nos. 6,337,746 & 6,618,157



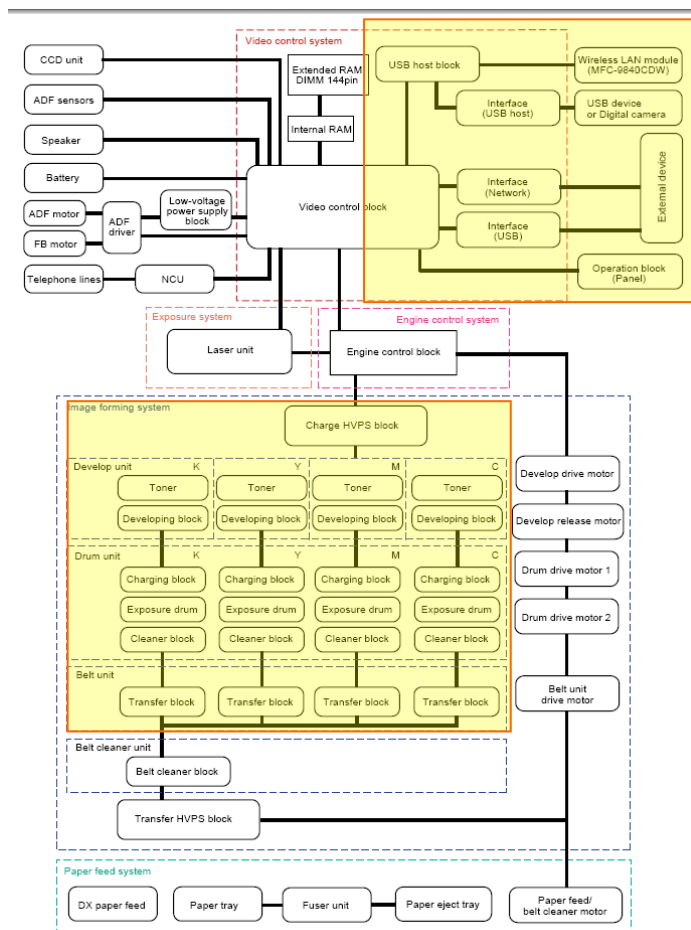
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U.S. Patent Nos. 6,337,746 & 6,618,157



Brother MFC-9120CW Service Manual, p. 6-11



Brother MFC-9840CDW Service Manual, p. Ref 2-1

MFC-9840CDW is a machine listed in this category. It functions similarly to the MFC-9440CN.

2. The apparatus according to claim 1 wherein said means for storing image data are operative for storing a quantity of image data sufficient to print the graphic image on the entire substrate, and said means

The Accused System and Method is driven by a computer containing a motherboard with a data bus and memory. The computer is controlled by an operating system. Images are stored in RAM. The RAM on the computer is operative to store a sufficiently large amount of image data to print an entire color graphic image on the surface of the full substrate. The interface card transfers the entire quantity of image data for generating the graphic image on the entire substrate without reloading RAM or ceasing print operations.